

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Pioneer Hi-Bred International, Inc.

Whereas, there has been presented to the

Secretary of Agriculture

An application requesting a certificate of protection for an alleged distinct variety of sexually reproduced, or tuber propagated plant, the name and description of which are contained in the application and exhibits, a copy of which is hereunto annexed and made a part hereof, and the various requirements of LAW in such cases made and provided have been complied with, and the title thereto is, from the records of the PLANT VARIETY PROTECTION OFFICE, in the applicant(s) indicated in the said copy, and Whereas, upon due examination made, the said applicant(s) is (are) adjudged to be entitled to a certificate of plant variety protection under the LAW.

Now, therefore, this certificate of plant variety protection is to grant unto the said applicant(s) and the successors, heirs or assigns of the said applicant(s) for the term of TWENTY years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exclude others from selling the variety, or offering it for sale, or reproducing it, or importing it, or exporting it, or conditioning it for pagation, or stocking it for any of the above purposes, or using it in producing a hybrid or different therefrom, to the extent provided by the PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS ED, 7 U.S.C. 2321 ET SEQ.)

CORN, FIELD

'PHCHP'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this tenth day of November, the year two thousand and ten.

- Vilal

Attest:

Bl~3~

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary

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### 200700307

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) NEW: With the application for a seed reproduced variety or by direct deposit soon after filling, the applicant must provide at least 3,000 viable untreated seeds of the variety per se, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificates. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130.97.131, 97.175(h) of the Regulations and Rules of Practice.)

Plant Variety Protection Office

Telephone: (301) 504-5518 FAX: (301) 504-5291

General E-mail: PVPOmail@usda.gov

Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

### SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. http://www.ams.usda.gov/lsg/seed.htm.

### ITEM

19a.Give:

- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
- (2) the details of subsequent stages of selection and multiplication;
- (3) evidence of uniformity and stability; and
- (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
  - (1) identify these varieties and state all differences objectively;
  - (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
- 20. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
- 23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
- 24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.
- 22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)
- 23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

November 1, 2006 (United States), January 19, 2007 (Italy), March 19, 2007 (Turkey)

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

USPTO 1/31/2007 Application No. 11/669,263 Patent No. 7511205, EU CVPO 7/17/2007 File No. 20071590 Grant No. 22175.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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### Exhibit A. Origin and Breeding History for PHCHP

Pedigree: PH58C/PH2T6)X613311X

Pioneer Line PHCHP, Zea mays L., a yellow endosperm corn inbred, was developed by Pioneer Hi-Bred International, Inc. from the single cross hybrid PH58C (PVP Certificate No. 200300232) X PH2T6 using the pedigree method of plant breeding. Varieties PH58C and PH2T6 are proprietary inbred lines of Pioneer Hi-Bred International, Inc. Variety PH2T6 was derived by pedigree selection from PHNG2 X PHRF1. Variety PHRF1 was derived by pedigree selection from PHP02 (PVP Certificate Number 8800212) X PHR63 (PVP Certificate Number 8900321). Selfing was practiced from the above hybrid for 7 generations using pedigree selection. During line development, crosses were made to inbred testers for the purpose of estimating the line's combining ability. Yield trials were grown at Johnston, Iowa as well as other Pioneer research locations. After initial testing, additional hybrid combinations have been evaluated and subsequent generations of the line have been grown and hand-pollinated with observations again made for uniformity.

Variety PHCHP has shown uniformity and stability for all traits as described in Exhibit C - "Objective Description of Variety". It has been self-pollinated and ear-rowed 5 generations with careful attention paid to selection criteria and uniformity of plant type to assure genetic homozygosity and phenotypic stability. The line has been increased both by hand and in isolated fields with continued observations for uniformity and stability, and for 3 generations during the final stages of inbred development and seed multiplication. Very high standards for genetic purity have been established morphologically using field observations and using sound lab molecular marker methodology.

No variant traits have been observed or are expected in PHCHP.

The criteria used in the selection of PHCHP were yield, both per se and in hybrid combinations. Late season plant health, grain quality, and stalk lodging resistance, were important criteria considered during selection. Other selection criteria include: ability to germinate in adverse conditions, disease and insect resistance, pollen yield and tassel size.



\* PHNG2 was derived by pedigree selection from PHP02 (PVP Certificate No. 8800212) and PHW89. PHW89 was derived from G35 (PVP Certificate No. 8300140) and PHG44. PHG44 was derived from variety 207 (PVP Certificate No. 8300144) and PH891. PH891 was derived by pedigree selection. The majority of the pedigree relative contribution to the derivation of PH891 was B14, A556 A509, I205, IDT, MINN49, and Troyer Reid.

Exhibit A: Developmental History for PHCHP

Pedigree Grown Season/Year	Inbreeding Level of Pedigree Grown
PH58C	F0
PH2T6	F0
PH58C/PH2T6 1997	F1
PH58C/PH2T6)X 1998	F2
PH58C/PH2T6)X6 1999	F3
PH58C/PH2T6)X61 2000	F4
PH58C/PH2T6)X613 2000	F5
PH58C/PH2T6)X6133 2001	F6
PH58C/PH2T6)X61331 2002	F7
PH58C/PH2T6)X613311 2004	F8
PH58C/PH2T6)X613311X	F9 (SEED)

<sup>\*</sup>PHCHP was selfed and ear-rowed from F3 through F8 generation.

#Uniformity and stability were established from F6 through F8 generation and beyond when seed supplies were increased.



### **Exhibit B: Novelty Statement**

Variety PHCHP mostly resembles Pioneer Hi-Bred International, Inc. proprietary inbred line PHCND (PVP Certificate No. 200500230). Table 1 shows two sample t-tests on data collected primarily in Johnston and Dallas Center, Iowa in 2005 and 2006. The traits collectively show measurable differences between the two varieties.

Exhibit B: Novelty Statement

Variety PHCHP has a greater ear weight (163.7 g vs 125.0 g) than variety PHCND (Table 1).

Variety PHCHP has a shorter husk extension (2.3 cm vs 5.0 cm) than variety PHCND (Table 1).

Variety PHCHP has a greater leaf length (86.5 cm vs 77.3 cm) than variety PHCND (Table 1).

Variety PHCHP has a greater tassel central spike length (30.4 cm vs 22.5 cm) than variety PHCND (Table 1).

# Exhibit B: Novelty Statement Table(s)

Table 1: Data from Johnston and Dallas Center, Iowa in 2005 and 2006 presented by trait, across years, and broken out by year. Data are supporting evidence environmental conditions. Environments had different planting dates and were in different fields. A two-sample t-test was used to compare differences for differences between PHCHP and PHCND. Varieties were grown at 2 locations in 2005 and 3 locations in 2006 where each location had different between means.

Ear weight (g)	(6)															
Level 1. Over All	Station	Year	Year Variety-1	Variety-2 PHCND	Cnt-1 25	<b>Cnt-2</b> 25	Mean-1 163.7	Mean-2 125.0	Mean_Diff 38.7	<b>StDev-1</b> 16.370	StDev-2 17.128	StErr-1 3.274	<b>StErr-2</b> 3.426	DF 48	t-Value 8.2	Prob_Pool 0.000
2. Year		2005	PHCHP	PHCND	10	10	163.0	137.0	26.0	13.250	18.803	4.190	5.946	18	3.6	0.002
2. Year		2006	PHCHP	PHCND	15	15	164.1	116.9	47.2	18.601	10.152	4.803	2.621	28	8.6	0.000
Husk extens	Husk extension length (cm)															
Level	Station	Year	Variety-1	Variety-2	Cnt-1	Cnt-2	Mean-1	Mean-2	Mean_Diff	StDev-1	StDev-2	StErr-1	StErr-2	DF	t-Value	Prob_Pool
1. Over All			PHCHP	PHCND	25	25	2.3	5.0	-2.7	1.208	1.241	0.242	0.248	48	7.7-	0,000
2. Year		2005	PHCHP	PHCND	10	10	1.8	5.3	-3.5	1.229	0.949	0.389	0.300	18	-7.1	0.000
2. Year		2006	PHCHP	PHCND	15	15	2.6	4.7	-2.1	1.121	1.387	0.289	0.358	28	4.6	0.000
Leaf length (cm)	(cm)															
Level	Station	Year	Variety-1	Variety-2	Cnt-1	Cnt-2	Mean-1	Mean-2	Mean_Diff	StDev-1	StDev-2	StErr-1	StErr-2	DF	t-Value	Prob_Pool
1. Over All			PHCHP	PHCND	25	25	86.5	77.3	9.2	4.022	5.601	0.804	1.120	48	6.7	0.000
2. Year		2005	PHCHP	PHCND	10	10	89.9	81.5	8.4	2.283	2.677	0.722	0.847	18	9.7	0.000
2. Year		2006	PHCHP	PHCND	15	15	84.3	74.5	9.8	3.283	5.290	0.848	1.366	28	6.1	0.000
Tassel centr	Tassel central spike length (cm)	(cm)														
Level	Station	Year	Variety-1	Variety-2	Cnt-1	Cnt-2	Mean-1	Mean-2	Mean_Diff	StDev-1	StDev-2	StErr-1	StErr-2	DF	t-Value	Prob_Pool
1. Over All			PHCHP	PHCND	25	25	30.4	22.5	7.9	3.162	2.946	0.632	0.589	48	9.2	0.000
2. Year		2005	PHCHP	PHCND	10	10	32.9	25.0	7.9	2.378	1.886	0.752	0.596	18	8.2	0.000
2. Year		2006	PHCHP	PHCND	15	15	28.7	20.8	7.9	2.463	2.242	0.636	0.579	28	9.2	0.000



Application Variety Data

(Corn; Maize) (8-22-2001)

# United States Department of Agriculture, Agricultural Marketing Service Science and Technology, Plant Variety Protection Office National Agricultural Library Building, Room 400 Beltsville, MD 20705-2351 OBJECTIVE DESCRIPTION OF VARIETY CORN (Zea mays L.)

Name of Applicant(s	s)	I Variety See	d Source	1	Variety Name	or Tempora	ary Designa	tion
Pioneer Hi-Bred In	ternational, Inc	1		1	PHCHP			
Address (Street & N	lo., or R.F.D. No., City, State,	Zip Code and Country	l l	FOR OFFICIAL	USE	I PVP	O Number	
7301 NW 62nd Ave	enue, P.O. Box 85, Johnston,	Iowa 50131-0085	I			#21	007	0 0 3
adding leading zero	te number that describes the vestiges if necessary. Completenessary for an adequate variety des	s should be striven for t	to establish a					
COLOR CHOICES	(Use in conjunction with Muns	ell color code to describ	oe all color ch	noices; describe	#25 and #26 in 0	Comments s	ection):	
01. Light Green	06. Pale Yellow	11. Pink	16. Pale		21. Buff		her (Describ	oe)
02. Medium Green	07. Yellow	12. Light Red	17. Purp	ole	22. Tan			
03. Dark Green	08. Yellow-Orange	13. Cherry Red	18. Cold		23. Brown			
04. Very Dark Gre	The state of the s	14. Red	19. Whi	te	24. Bronze			
05. Green-Yellow	10. Pink-Orange	15. Red & White	20. Whi	te Capped	25. Variegated	(Describe)		
STANDARD INBRE	D CHOICES [Use the most sin	milar (in background ar	nd maturity) o	f these to make	comparisons bas	sed on grow-	out trial dat	ta]:
Yellow Dent Famil	ies:	Yellow Dent (Unrelate	ed):		Sweet Corn:			
Family	Members	Co109, ND24	6		C13, low	va5125, P39,	, 2132	
B14	CM105, A632, B64, B68	Oh7, T232						
B37	B37, B76, H84	W117, W153	R		Popcom:			
B73	N192, A679, B73, Nc268	W182BN			SG15	33, 4722, HF	2301, HP72	11
C103	Mo17, Va102, Va35, A682							
Oh43	A619, MS71, H99, Va26	White Dent:			Pipecorn:			
WF9	W64A, A554, A654, Pa91	CI66, H105, H	(y228		Mo15W,	Mo16W, Mo	024W	
1. TYPE: (describe	e intermediate types in "Comm	ents" section)			Standard Inl	bred Name	MO17	
<u>3</u> (1=Swe	eet, 2=Dent, 3=Flint, 4=Flour, 5	=Pop, 6=Ornamental,	7=Pipecorn)		<u>2</u> Typ€	•		
2. REGION WHER	RE DEVELOPED IN THE U.S.	A.:			Standard Se	ed Source	PI 558	3532
2 (1=N.W	Vest, 2=N.Central, 3=N.East, 4	=S.East, 5=S.Central,	6=S.West, 7=	=Other	I _Region			
3. MATURITY (In	Region Best Adaptability; show	v Heat Unit formula in "	Comments" s	section):	I			
DAYS	HEAT UNITS				I DA'	YS H	EAT UNITS	
60	1,355.0 From emergence	e to 50% of plants in sil	lk		I	64	1,494.4	
60	1,355.0 From emergence	e to 50% of plants in po	ollen		I	60	1,373.0	
2	56 From 10% to 90	% pollen shed			1	2	58	
	From 50% silk to	optimum edible qualit	У					
	From 50% silk to	harvest at 25% moist	ure					
4. PLANT:			St.Dev.	Sample Size	l Mear	n St.[	Dev. Sam	ple Size
219.5 cm Pla	ant Height (to tassel tip)		14.69	<u>25</u>	224.9	9 14	4.55	25
69.2 cm Ea	r Height (to base of top ear no	de)	11.19	<u>25</u>		6 1	1.94	25
17.1 cm Le	ngth of Top Ear Internode		2.17	<u>25</u>	16.6	6	2.43	25
0.0 Average	ge Number of Tillers		0.02	<u>5</u>	0.0	0 0	0.00	5
	ge Number of Ears per Stalk		0.10	<u>5</u>	I <u>1.0</u>	2 0	0.03	5
3 Anthor	cyanin of Brace Roots: 1=Abse	ent, 2=Faint, 3=Modera	te, 4=Dark		1	3		

Page 1

Standard Inbred Data

CLEAR	St.Dev.	Sample Size	l Mean	St.Dev.	Sample Size
5. LEAF	0.69	25	9.0	0.65	25
9.7 cm Width of Ear Node Leaf		<u>25</u>		6.17	25
86.5 cm Length of Ear Node Leaf	4.02			100000000000000000000000000000000000000	
6.5 Number of leaves above top ear	0.82	<u>25</u>		0.64	25
26.8 Degrees Leaf Angle	4.79	<u>25</u>	30.4	3.43	<u>25</u>
(Measure from 2nd leaf above ear at anthesis to	stalk above leaf)		l)		
4 Leaf Color (Munsell Code) 5GY36				Il Code) 5G	734
3 Leaf Sheath Pubescence (Rate on scale from 1=		fuzz)	1 <u>3</u>		
Marginal Waves (Rate on scale from 1=none to 9	9=many)		_		
_ Longitudinal Creases (Rate on scale from 1=non	e to 9=many)		_		
3. TASSEL:	St.Dev.	Sample Size	I Mean	St.Dev.	Sample Size
4.2 Number of Primary Lateral Branches	1.64	<u>25</u>		1.08	25
33.0 Degrees Branch Angle from Central Spike	8.15	25		7.71	25
	3.35	<u>25</u>		3.64	25
62.0 cm tassel Length	<u>5.55</u>	20	1 00.4	0.04	20
(from top leaf collar to tassel tip)	to Omboous abod)				
6 Pollen Shed (Rate on scale from 0=male sterile	to 9=neavy sned)		l <u>6</u>	II Code) 2 50	2700
17 Anther Color (Munsell Code) 2.5R2B			-	II Code) 2.50	
2 Glume Color (Munsell Code) 7.5GY56	. 82		. 50 W	II Code) 5G	36
1 Bar Glumes (Glume Bands): 1=Absent, 2=Prese	nt		1		
7a. EAR (Unhusked Data):		-	I		
1 Silk Color (3 days after emergence) (Munsell Co	ode) <u>50</u>	SY94	I <u>1</u> Munse	II Code 2.50	3Y86
2 Fresh Husk Color (25 days after 50% silking) (N		SY66 ,	I 2 Munse	Il Code 5GY	768
21 Dry Husk Color (65 days after 50% silking) (Mui		5Y8.54	I 21 Munse		78.54
1 Position of Ear at Dry Husk Stage: 1=Upright, 2	and the second s		1 1		
4 Husk Tightness (Rate on scale from 1=very loos			. <u> </u>		
2 Husk Extension (at harvest): 1=Short(ears expo		m) 3=1 ong (8-	. <u>.</u> I <u>2</u>		
	sed), Z-Medidili (500	ii), 3-Long (0-	· <u> </u>		
10cm beyond ear tip), 4=Very Long (>10cm)			1		
7b. EAR (Husked Ear Data)	St. Dev.	Sample Size	l Mean	St.Dev.	Sample Size
17.9 cm Ear Length	0.95	<u>25</u>	18.4	1.12	25
46.5 mm Ear Diameter at mid-point	1.45	25	36.6	1.76	25
163.7 gm Ear Weight	16.37	25	99.0	12.55	25
16.3 Number of Kernel Rows	1.25	25		0.98	25
2 Kernel Rows: 1=Indistinct, 2=Distinct		_	I <u>2</u>		_
2 Row Alignment: 1=Straight, 2=Slightly Curved,	3=Spiral		_   <u>1</u>		
10.9 cm Shank Length	1.86	25	. <u> </u>	1.91	25
2 Ear Taper: 1=Slight cyl., 2=Average slightly con		20		1.31	20
Z Ear Taper. 1–Slight Cyl., Z–Average slightly con	., 3-Extreme conical		2		
3. KERNEL (Dried):	St.Dev.	Sample Size		St.Dev.	Sample Size
11.2 mm Kernel Length	0.55	<u>25</u>		0.65	25
8.9 mm Kernel Width	0.67	<u>25</u>	<u>8.8</u>	0.62	25
5.5 mm Kernel Thickness	0.65	25	<u>5.1</u>	0.86	25
73.6 % Round Kernels (Shape Grade)	8.08	5	61.5	14.07	5
1 Aleurone Color Pattern: 1=Homozygous, 2=Seg		-	I 1 (descri		
7 Aleurone Color (Munsell Code)	10YR714		7 Munse		0YR814
7 Hard Endosperm Color (Munsell Code)	10YR610		I 7 Munse	7.0.C.3.C.C.G.114	0YR714
3 Endosperm Type: 1=Sweet(su1), 2=Extra Sweet	The second secon	ch. 4=High	I 3 (descri		
Amylose Starch, 5=Waxy Starch, 6=High Protei			<u> </u>		
(se), 9=High Oil, 10=Other_	n, 7-riigh Lysine, 0-0	uper oweet			
20.2 and Walcht and A0.1	0.77	-	1 00.4	4.00	2
32.2 gm Weight per 100 kernels (unsized sample)	2.77	<u>5</u>	33.4	1.82	5
). COB:	St.Dev.	Sample Size	l Mean	St.Dev	Sample Size
28.2 mm Cob Diameter at mid-point	1.07	<u>25</u>		0.88	25
10 Cob Color (Munsell Code)	10R48		I 11 Munsell		YR56
				=10	
Application Variety Data			Standard Inbred	d Data	

40 DISEASE DEGISTANCE (Data from 1/month suppositible) to	O (most resistant): legye blank	10	
10. DISEASE RESISTANCE (Rate from 1(most susceptible) to	9 (most resistant), leave blank		
if not tested; leave Race or Strain Options blank if polygenic):		1	
A. Leaf Blights, Wilts, and Local Infection Diseases		4.	Authorizana Lond Dilaha
_ Anthracnose Leaf Blight (Colletotrichum graminicola)		1	_ Anthracnose Leaf Blight
7 Common Rust (Puccinia sorghi)		1	Common Rust
9 Common Smut (Ustilago maydis)		1	_ Common Smut
Eyespot (Kabatiella zeae)		1	Eyespot
8 Goss's Wilt (Clavibacter michiganense spp. nebraske	nsis)	1	Goss's Wilt
6 Gray Leaf Spot (Cercospora zeae-maydis)		1	5 Gray Leaf Spot
<ul> <li>Helminthosporium Leaf Spot (Bipolaris zeicola)</li> </ul>	Race	1	_ Helminthosporium Leaf Spot Race_
3 Northern Leaf Blight (Exserohilum turcicum)	Race	1	7 Northern Leaf Blight Race_
Southern Leaf Blight (Bipolaris maydis)	Race	1	Southern Leaf Blight Race_
Southern Rust (Puccinia Polysora)		1	Southern Rust
6 Stewart's Wilt (Erwinia stewartii)		1	6 Stewart's Wilt
_ Other (Specify)		1	Other (Specify)
B. Systemic Diseases		Ţ	
Corn Lethal Necrosis (MCMV and MDMV)		1	Corn Lethal Necrosis
9 Head Smut (Sphacelotheca reiliana)		1	8 Head Smut
_ Maize Chlorotic Dwarf Virus (MCDV)		1	_ Maize Chlorotic Dwarf Virus
_ Maize Chlorotic Mottle Virus (MCMV)		1	_ Maize Chlorotic Mottle Virus
Maize Dwarf Mosaic Virus (MDMV) Stra	ain	1	Maize Dwarf Mosaic Virus Strain_
_ Sorghum Downy Mildew of Corn (Peronosclerospora	sorghi)	1	_ Sorghum Downy Mildew of Corn
_ Other (Specify)		1	Other (Specify)
C. Stalk Rots		1	
5 Anthracnose Stalk Rot (Colletotrichum graminicola)		1	Anthracnose Stalk Rot
_ Diplodia Stalk Rot (Stenocarpella maydis)		1	_ Diplodia Stalk Rot
Fusarium Stalk Rot (Fusarium moniliforme)		1	_ Fusarium Stalk Rot
_ Gibberella Stalk Rot (Gibberella zeae)		1	_ Gibberella Stalk Rot
_ Other (Specify)		Ţ	Other (Specify)
D. Ear and Kernel Rots		1	
_ Aspergillus Ear and Kernel Rot (Aspergillus flavus)		Ţ	_ Aspergillus Ear & Kernel Rot
6 Diplodia Ear Rot (Stenocarpella maydis)		1	3 Diplodia Ear Rot
5 Fusarium Ear and Kernel Rot (Fusarium moniliforme)		1	Fusarium Ear & Kernel Rot
Gibberella Ear Rot (Gibberella zeae)		1	Gibberella Ear Rot
_ Other (Specify)		1 0	Other (Specify)

Note: Use chart on first page to choose color codes for color traits.

	The second of th	
11. INSECT RESISTANCE (Rate from 1(most susceptible) to		St. Dev. Sample Siz
if not tested	St. Dev. Sample Size	Banks Grass Mite
Banks Grass Mite (Oligonychus pratensis)		
Corn Earworm (Helicoverpa zea)		1 Corn Earworm
_ Leaf Feeding		Leaf Feeding
Silk Feedingmg larval wt.		
_ Ear Damage		Ear Damage
Corn Leaf Aphid (Rhopalosiphum maidis)		Corn Leaf Aphid
Corn Sap Beetle (Carpophilus dimidiatus)		Corn Sap Beetle
European Corn Borer (Ostrinia nubilalis)		European Corn Borer
1 st Generation (Typically Whorl Leaf Feeding)	P X	1 1 st Generation
2 nd Generarion (Typically Leaf Sheath-Collar Feed	ling)	_ 2 nd Generation
Stalk Tunneling: cm tunneled/plant	-	!
Fall Armyworm (Spodoptera frugiperda)		I Fall Armyworm
_ Leaf-Feeding		Leaf-Feeding
Silk-Feedingmg larval wt.		
<ul> <li>Maize Weevil (Sitophilus zeamais)</li> </ul>		_ Maize Weevil
<ul> <li>Northern Rootworm (Diabrotica barberi)</li> </ul>		Northern Rootworm
<ul> <li>Southern Rootworm (Diabrotica undecimpunctata)</li> </ul>		Southern Rootworm
Southwestern Corn Borer (Diatraea grandiosella)		I Southwestern Corn Borer
_ Leaf Feeding		Leaf Feeding
Stalk Tunneling:cm tunneled/plant		·
<ul> <li>Two-spotted Spider Mite (Tetranychus urticae)</li> </ul>		Two-spotted Spider Mite
<ul> <li>Western Rootworm (Diabrotica virgifera virgifera)</li> </ul>		Western Rootworm
Other (Specify)		Other (Specify)
12. AGRONOMIC TRAITS:		1
6 Stay Green (at 65 days after anthesis) (Rate on sca	ale from 1=worst to 9=excellent)	I <u>3</u> Stay Green
% Dropped Ears (at 65 days after anthesis)		l % Dropped ears
_ % Pre-anthesis Brittle Snapping		Pre-anthesis Brittle Snapping
15 % Pre-anthesis Root Lodging		5 % Pre-anthesis Root Lodging
% Post-anthesis Root Lodging (at 65 days after ant	hesis)	Post-anthesis Root Lodging
7,645.0 Kg/ha Yield of Inbred Per Se (at 12-13% gra	ain moisture)	4,422.0 Yield
13. MOLECULAR MARKERS: (0=data unavailable; 1=data a	available but not supplied; 2=data su	applied.)
1 Isozymes RFLP's	_ RAPD's	_ Other (Specify)
REFERENCES:		
Butler, D.R. 1954. A System for the Classification of Corn In	bred Lines, PhD Thesis, Ohio Unive	rsitv.
Emerson, R.A., G.W. Beadle, and A.C. Fraser, 1935. A sum		
Farr, D.F., G.F. Bills, G.P. Chamuris, A.Y. Rossman. 1989.		
Society, St. Paul, MN.		- Andrews Constitution of the particular of the
Inglett, G.E. (Ed) 1970. Corn: Culture, Processing, Products	Avi Publishing Company, Westpoir	nt. CT.
Jugenheimer, R.W. 1976. Corn: Improvement, Seed Produc	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	
McGee, D.C. 1988. Maize Diseases. APS Press, St. Paul, N	발생이어를 전혀되는 것이 보고 있다고 있다. 그런 사람들은 사람들이 되는 모든 모르아이어 되었다. 1985년 - 1987년	
Munsell Color Chart for Plant Tissues, Macbeth, P.O. Box 23		
The Mutants of Maize. 1968. Crop Science Society of Ameri		
Shurtleff, M.C. 1980. Compendium of Corn Diseases. APS F		
Sprague, G.F., and J.W. Dudley (Editors). 1988. Corn and C		ronomy Monograph 18. ASA, CSSA, SSSA.
Madison, WI.		
Stringfield, G.H. Maize Inbred Lines of Ohio A.E.S., Bul. 831	. 1959.	
U.S. Department of Agriculture 1936, 1937. Yearbook.		

COMMENTS (e. g. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D)
Insect, disease, brittle snapping and root lodging data are collected mainly from environment where variability for the trait
can be obtained within the experiment.

### CLARIFICATION OF DATA IN EXHIBITS B AND C

Please note the data presented in Exhibit B and C, "Objective Description of Variety," are collected primarily at Johnston and Dallas Center, Iowa. The data in Tables 1A and 1B are from two sample t-tests using data collected in Johnston and Dallas Center, IA. These traits in exhibit B collectively show distinct differences between the two varieties.

Our experimental design was set up in a typical complete block design commonly used in agricultural corn research experiments with one replication grown at each location. The experiment procedures generally involve three locations/environments with different planting dates, planted in 17.42 ft. rows with 2 rows for each variety. Approximately 24-30 plants emerged in each of 2 rows for a total of around 48 to 60 plants being evaluated at each location and 144 to 180 plants across locations. For plant level traits, we sampled 5 representative plants from the 2 rows of the 2 row plot (group) of plants at each location. For plot level traits we evaluated the 2 row plot (group) and gave a representative score or average on the 48-60 plants in the group within an experiment. One of the 3 locations was dropped in 2005 due to poor emergence and field conditions.

Manualla	GRO	WING DEGRE	E UNITS (GI	DU's)		PRECIPITAT	ION (Inches)	
Month	20	05	20	06	20	05	20	06
-40	D. Center	Johnston	D. Center	Johnston	D. Center	Johnston	D. Center	Johnston
May	356	388	390	460	5.04	6.63	1.23	1.22
June	677	729	643	667	1.52	6.85	0.37	1.08
July	711	788	779	816	2.84	5.02	5.19	5.39
August	626	725	671	754	2.31	1.98	5.85	4.7
September	526	585	361	417	2.01	2.81	4.59	3.98
TOTAL	2896	3215	2844	3114	13.72	23.29	17.23	16.37

	PLA	NTING DA	TES
YEAR	DC	JH-1	JH-2
2005	6-May	3-May	10-May
2006	12-May	4-May	10-May

### Calculate GDU's

Growing Degree Units use the following formula: GDU = ((T1+T2)/2)-50

- Where T1 = minimum temperature for a given day with 50 degrees Fahrenheit as the minimum temperature used and 86 degrees Fahrenheit is the maximum temperature used.
- Where T2 = maximum temperature for a given day with 86 degrees Fahrenheit as the maximum temperature used and 50 degrees Fahrenheit is the minimum temperature used.

GDU"s are calculated each day and accumulated (summed) over certain number of days.

NOTE: In general, cases where less than 10 observations are presented the trait was collected at the plot level as it has been done in the past. This means many more plants were visually evaluated according to the procedure outlined above, and then a score of the "population" of the plants was recorded for each location. We have adjusted our current process to sample at least 15 plants for plant-level traits at a location.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY PLANT VARIETY PROTECTION OFFICE BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S)	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country)	TEMPORARY OR EXPERIMENTAL DESIGNATION
Pioneer Hi-Bred International, Inc.	7301 NW 62 <sup>nd</sup> Avenue Johnston, IA 50131-0085	VARIETY NAME PHCHP
NAME OF OWNER REPRESENTATIVE (S)	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country)	FOR OFFICIAL USE ONLY
Steven R. Anderson	7301 NW 62 <sup>nd</sup> Avenue Johnston, IA 50131-0085	#200700307

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature

Date